IN THE CLAIMS

Please amend the claims as follows:

1.-34. (Canceled)

35. (Currently Amended): A method for analyzing at least one reaction medium comprising at least one cell C, ~~the method comprising the following~~ comprising:

(i) depositing the cell C onto a support S comprising a substantially planar surface and contained within a controlled atmosphere chamber, in the form of an aqueous drop comprising the cell C and a solution of culture medium on said surface;

(ii) covering the substantially planar surface of the support S onto which the aqueous drop containing the cell C has been deposited with a separating film F that allows gases to pass through and prevents evaporation of the aqueous drops deposited onto the support S;

(iii) optionally applying to the aqueous drop containing the cell C one or more treatment steps, wherein the aqueous drop results in a reaction medium;

(iv) preparing and introducing the support S supporting the reaction medium into a mass spectrometer;

(v) desorbing and ionizing the reaction medium in the mass spectrometer; and

(vi) recording and analyzing the mass spectrum of the reaction medium.

36. (Currently Amended): The method as claimed in claim 35, wherein, ~~in a third~~ before step ~~(iii)~~ (iv), ~~subjecting~~ the cell C is subjected to a stimulation.

37. (Previously Presented): The method as claimed in claim 36, wherein the stimulation to which the cell C is subjected is selected from the group consisting of:

the introduction of a reagent R;

being brought into contact with one or more cells;

a supply of energy;

the application of an electric field or of a magnetic field;

and

an optical treatment.

38. (Previously Presented): The method as claimed in claim 35, wherein the attachment of the drops to the support S occurs due to surface tension forces.

39. (Currently Amended): The method as claimed in claim 35, wherein the depositing of the aqueous drops containing a cell ~~or a reagent~~ onto the support S, and optionally under the separating film F, is carried out by means of fine capillaries.

40. (Currently Amended): The method as claimed in claim 35, wherein the depositing of the aqueous drops containing a cell ~~or a reagent~~ onto the support S is carried out by means of a piezoelectric system.

41. (Previously Presented): The method as claimed in claim 37, wherein the reagent R is selected from the group consisting of inorganic molecules, natural organic molecules, molecules derived from organic synthesis or from combinatorial synthesis, molecules extracted from biological samples, and molecules extracted from biological samples, which have been modified by synthesis.

42. (Previously Presented): The method as claimed in claim 41, wherein the molecules are selected from the group consisting of single-stranded and double-stranded DNAs, single-stranded and double-stranded RNAs, and proteins and peptides.

43. (canceled)

44. (Currently Amended): The method as claimed in claim [[43]] 35, further comprising at least one treatment step selected from the group consisting of cell lysis, one or more washes, and the adsorption or the attachment of molecules.

45. (Previously Presented): The method as claimed in claim 35, further comprising at least one step consisting of treating the reaction medium or media placed on the support S with a solution of molecules that promote desorption.

46. (Previously Presented): The method as claimed in claim 35, wherein the preparation, with a view to introduction into the mass spectrometer, comprises at least one step selected from the group consisting of freezing the reaction medium; drying with or without heat treatment and with or without a vacuum; and fixing by means of a treatment with an agent.

47. (Previously Presented): The method as claimed in claim 46, wherein the agent comprises methanol or formaldehyde.

48. (Previously Presented): The method as claimed in claim 35, wherein the preparation, with a view to introduction into the mass spectrometer, comprises the addition to

the reaction medium of one or more acid molecules that are small in size and absorb light, followed by drying.

49. (Previously Presented): The method as claimed in claim 48, further comprising at least the following steps:

introduction of the reaction medium or media placed on the support S into a mass spectrometer tube;

application of a vacuum and of an electric field in the spectrometer tube;

application of a desorption/ionization treatment in a controlled and sequenced manner on the sample(s): and

detection of the mass of the ions formed.

50. (Currently Amended): The method as claimed in claim 35, further comprising at least one step consisting of comparing the ~~data~~ recorded mass spectrometer with a mass spectrum bank.

51. (Currently Amended): A device for analyzing at least one reaction medium comprising at least one cell C, the device comprising the following:

a support S comprising a substantially planar surface, wherein the surface of the support S is covered with a separating film F that allows gases to pass through and prevents evaporation of ~~the~~ aqueous drops deposited onto the support S: wherein the support S can be used as sample support in a mass spectrometer;

a controlled-atmosphere chamber in which the support S is placed so as to allow the survival of the cell C;

means for depositing onto said surface aqueous drops containing the cell C [[,]] suspended in a culture medium;

means for desorbing and ionizing the reaction medium comprising the cell C;

and

a mass spectrometer.

52. (Canceled)

53. (Previously Presented): The device as claimed in claim 52, wherein the controlled-atmosphere chamber is an incubator at a temperature ranging from 35 to 42°C, the CO_2 level is maintained at between 3 and 5%, and the oxygen O_2 level is that of ambient air.

54. (Previously Presented): The device as claimed in claim 53, wherein the temperature ranges from 36.5 and 37.5°C.

55. (Currently Amended): The device as claimed in claim 51, wherein the separating film F is selected from the group consisting of:

a non-water-miscible liquid;

a gas;

a flexible, solid film; and

a rigid honeycombed cover comprising cavities and made of porous material, the size of the cavities being adjusted so as to be able to contain the drop of cell(s) and, optionally, a drop of reagent.

56. (Previously Presented): The device as claimed in claim 51, wherein the support S consists of a plate that is made of silicon, glass, or a polymer.

57. (Previously Presented): The device as claimed in claim 51, wherein the support S comprises an electrically conducting layer.

58. (Previously Presented): The device as claimed in claim 51, wherein the support S has a substantially planar surface comprising at least one means for receiving the aqueous drops.

59. (Previously Presented): The device as claimed in claim 58, wherein the means for receiving the aqueous drops consists of one of the following:

the support S exhibits a hydrophobic nature on its planar surface and comprises one or more hydrophilic areas;

the support S comprises cavities of a depth ranging from 1 micron to 1 millimeter on its planar surface;

the support S is a plate equipped with outgrowth of small thickness, from 1 micron to 1 millimeter, arranged on its surface and intended to promote the attachment of the drops; and

the support S is a plate equipped with at least one wire, onto which the drops attach.

60. (Previously Presented): The device as claimed in claim 51, wherein the support S to the device is mobile.

61. (Canceled)

62. (Currently Amended): The device as claimed in claim 51, wherein the means for depositing aqueous drops and for desorbing and ionizing the reaction medium are connected to a control device that allows it to be automated.

63. (Previously Presented): The device as claimed in claim 51, wherein the support S comprises means for receiving the drops, arranged regularly in the form of a matrix.

64. (Previously Presented): The device as claimed in claim 63, further comprising at least one piece of equipment for measuring the mass of a sample by means of mass spectrometry; the piece of equipment comprising a spectrometer tube, a device for creating a vacuum in the tube; electrical means for applying an electrical acceleration potential in the tube so as to accelerate the molecules of the sample to be analyzed; a means for detecting the mass of the ions formed; a means of introducing the support S into the tube; and a means for the desorption and the ionization of the sample to be treated.

65. (Previously Presented): The device as claimed in claim 51, wherein the desorption means is selected from the group consisting of a laser beam; a beam of ions; a beam of neutral atoms; a beam of electrons; and the spraying of a liquid sample.

66. (Previously Presented): The device as claimed in claim 51, wherein the desorption/ionization means is selected from the group consisting of:

MALDI: matrix assisted laser desorption ionization;

SELDI: surface enhanced laser desorption ionization;

SIMS: secondary ion mass spectrometry;

SLAMS: secondary neutral mass spectrometry;

ESI: electrospray ionization o FAB: fast atom bombardment; and

APCI: atmospheric pressure chemical ionization.

67. (Currently Amended): The device as claimed in claim [[51]] 64, wherein the means of measuring the mass is selected from the group consisting of:

TOF: time of flight;

MS/MS: tandem mass spectrometry or multidimensional mass spectrometry;

Quadrupole (or ion trap); and

FT-MS or FT-ICR: Fourier-Transform mass spectrometry-ion cyclotron resonance.

68-69. (Canceled)

70. (New): A method for analyzing at least one reaction medium comprising at least one cell C comprising:

(i) depositing within a controlled atmosphere chamber an aqueous drop containing live cell C and a culture medium onto a support S having a substantially planar surface,

(ii) covering the substantially planar surface of the support S onto which the aqueous drop containing the cell C has been deposited with a separating film F that allows gases to pass through and prevents evaporation of the aqueous drops deposited onto the support S;

(iii) growing said live cell C on the substantially planar surface of support S,

(iv) optionally stimulating said live cell C,

(v) contacting said cell C on the substantially planar surface with at least one reagent,

(vi) preparing said cell C on the substantially planar surface of support S after contact with said at least one reagent for mass spectrometry,

(vii) introducing said preparation into a mass spectrometer;

(viii) desorbing and ionizing the preparation in the mass spectrometer; and

(ix) recording and analyzing the mass spectrum of the preparation.